General

Guideline Title

Clinical practice guideline: planning for labor and vaginal birth after cesarean.

Bibliographic Source(s)

American Academy of Family Physicians. Clinical practice guideline: planning for labor and vaginal birth after cesarean. Leawood (KS): American Academy of Family Physicians; 2014 May. 20 p. [51 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Wall E, Roberts R, Deutchman M, Hueston W, Atwood LA, Ireland B. Trial of labor after cesarean (TOLAC), formerly trial of labor versus elective repeat cesarean section for the woman with a previous cesarean section. Leawood (KS): American Academy of Family Physicians (AAFP); 2005 Mar. 18 p. [38 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

The quality of evidence (High, Moderate, Low) and the strength of the recommendations (Strong, Weak, Good Practice Point) are defined at the end of the "Major Recommendations" field.

Recommendation 1: Labor after cesarean (LAC) is safe and appropriate for most women with a history of one or two prior cesarean births. The American Academy of Family Physicians (AAFP) recommends that clinicians counsel, encourage and facilitate planned vaginal birth after cesarean (VBAC) so that women can make informed decisions. (Quality of Evidence: Moderate) If planned VBAC is not locally available, then women desiring it should be offered referral to a facility and/or clinician who can offer the service.

Recommendation 2: The AAFP strongly recommends that clinicians inform women who have had a prior vaginal birth, either before or after a prior cesarean birth, that they have a high likelihood of VBAC. Unless there are specific contraindications to a vaginal birth, these women should be encouraged to plan a labor and VBAC and should be offered referral to clinicians and facilities capable of providing this service, if it is not available locally. (Quality of Evidence: High)

Recommendation 3: There are few data about factors other than prior vaginal birth that strongly influence the rate of VBAC. Clinicians should discuss the indications for and circumstances surrounding a woman's prior cesarean birth(s) during counseling. (Good Practice Point)

Recommendation 4: When a woman who has had a prior cesarean birth presents to the hospital in labor, the clinician caring for her should reassess with her the plan for labor and VBAC or repeat cesarean, considering factors on admission that may affect the risks of labor and the likelihood of vaginal birth. The clinician should discuss, on an ongoing basis during labor, any change of status affecting the risks of labor and likelihood of vaginal birth for a woman electing LAC. (Good Practice Point)

Recommendation 5: The AAFP recommends that induction of LAC is appropriate for women who have a medical indication for induction of labor and who are planning a VBAC. The risk of uterine rupture varies by method of induction. Misoprostol should not be used for cervical preparation or induction of LAC in the third trimester of pregnancy for women with a prior cesarean birth. (Quality of Evidence: Low to Moderate)

Recommendation 6: Clinicians should inform each woman about the specific short-term benefits and harms of planned labor and VBAC and planned repeat cesarean birth, both for herself and her fetus/infant. (Good Practice Point) Maternal outcomes are equivalent or better with LAC/VBAC compared with repeat cesarean delivery (RCD) (Quality of evidence varies by outcome), while perinatal mortality is increased with LAC/VBAC compared to RCD. (Quality of Evidence: Moderate)

Recommendation 7: Clinicians should inform each woman about the specific long-term benefits and harms of planned labor and VBAC and planned repeat cesarean birth, and individualize care based on patient preferences regarding lifetime plans for childbearing. (Good Practice Point) Compared with VBAC, RCD increases future risks of abnormal placentation (Quality of Evidence: Moderate), hysterectomy (Quality of Evidence: Moderate), and surgical complications (Quality of Evidence: Low).

Recommendation 8: Limited data show similar outcomes for women undergoing LAC/VBAC regardless of type or location of hospital or birth volume. However, infants delivered longer than 30 minutes after a decision to perform immediate delivery for possible uterine rupture have poorer long-term outcomes compared with those delivered more quickly. (Quality of Evidence: Moderate) All women desiring LAC/VBAC should be counseled about the capabilities of their specific delivery setting, and women determined to be at high risk for complications with either labor and VBAC or repeat cesarean birth should be referred to facilities capable of effectively treating problems as they develop. (Good Practice Point)

Recommendation 9: Hospitals should have institutional guidelines to promote access to labor and VBAC. Hospitals should actively monitor and endeavor to continuously improve the quality of care for women who choose LAC. (Good Practice Point)

Definitions:

Constructing the Guideline

The guideline development group (GDG) used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system to rate the quality of the evidence for each outcome. The Agency for Healthcare Research and Quality (AHRQ) report did not provide strength of evidence ratings for prognostic factors so the GDG also rated the strength of evidence for those outcomes according to the methods suggested by the GRADE Working Group.

Classification of Evidence-based Statements

The GRADE system provides for two levels of strength of recommendations, "Strong" and "Weak." The GRADE system also provides the opportunity to issue guideline recommendations without a rating when appropriate. Circumstances where these types of recommendations are helpful, but for which no direct evidence is available (e.g., the value of informed consent and counseling for women contemplating LAC/VBAC), were designated as "Good Practice Points" (GPP) according to the recommendation of the GRADE Working Group. Recommendations were worded to indicate the underlying strength of recommendation. Strong GRADE recommendations were worded as "The American Academy of Family Physicians (AAFP) strongly recommends . . ." and weak GRADE recommendations were worded as "The AAFP recommends . . ." Good practice points carry the wording of "Clinicians should . . ."

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Pregnancy and previous cesarean section

Guideline Category

Counseling

Management

Risk Assessment

Clinical Specialty

Family Practice

Obstetrics and Gynecology

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To provide evidence on short- and long-term health outcomes associated with labor and vaginal birth after cesarean (VBAC) delivery

Target Population

Women considering labor after cesarean (LAC)/vaginal birth after cesarean (VBAC)

Interventions and Practices Considered

1. Counseling, facilitating, and encouraging labor and vaginal birth after cesarean (VBAC), including referral to other facilities
2. Reassessment of plan for labor and vaginal birth on presentation
3. Informing women of short- and long-term benefits and harms of VBAC and planned repeat cesarean delivery (RCD)
4. Referral to hospitals capable of dealing with complications

Major Outcomes Considered

- Maternal outcomes
    - Maternal mortality
    - Hysterectomy
    - Bleeding
    - Infection
    - Uterine rupture
- Fetal and neonatal outcomes
    - Perinatal mortality

    - Respiratory complications
- Other (e.g., risk of hypoxic ischemic encephalopathy/asphyxia, sepsis, birth trauma)

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Systematic Review

In 2010, the Agency for Healthcare Research and Quality (AHRQ) published its updated evidence report *Vaginal Birth After Cesarean: New Insights Evidence Report/Technology Assessment No. 191* (see the "Availability of Companion Documents" field). The guideline development group (GDG) accepted the AHRQ evidence report No. 191 as the basis for constructing this guideline. The report provides a full description of the methods used for the AHRQ systematic review. Key questions for the evidence report were derived from the work of the Planning Committee for the National Institutes of Health Consensus Development Conference on Vaginal Birth After Cesarean: New Insights. They were as follows:

1. Among women who attempt a trial of labor after prior cesarean, what is the vaginal delivery rate and the factors that influence it?
2. What are the short and long term benefits and harms to the mother of attempting a trial of labor after prior cesarean versus elective repeat cesarean delivery, and what factors influence benefits and harms?
3. What are the short and long term benefits and harms to the baby of maternal attempt at trial of labor after prior cesarean versus elective repeat cesarean delivery and what factors influence benefits and harms?
4. What are the critical gaps in the evidence for decision making, and what are the priority investigations needed to address these gaps?

The GDG reviewed the key questions, determined that they were clinically relevant and decided to use them as the basis for the guideline. The GDG developed a fifth key question based on the needs of American Academy of Family Physicians (AAFP) members:

5. What resources should be available when attempting LAC/VBAC?

A search strategy for the additional key question was developed with the assistance of a healthcare librarian and the GDG methodologists. Study inclusion criteria and methodologic quality assessment instruments were consistent with the AHRQ systematic review and are detailed below.

Update of Literature Search

An updated literature search using the same search criteria outlined in the AHRQ evidence-based practice center (EPC) report was completed. The updated search resulted in 2932 articles. Two reviewers independently examined citations and abstracts using the same inclusion and exclusion criteria that were used in the AHRQ evidence report. Full-text articles were reviewed if at least one reviewer thought it should be included or reviewers required the full study text to evaluate it for inclusion. This resulted in 71 full-text articles being reviewed. Each relevant study was rated for quality of evidence using the approach used for the AHRQ evidence report. In keeping with the AHRQ methods, studies that were rated as having good or fair quality were included for GDG consideration. However, when only poor-quality studies were available for a topic, they were included. For this updated evidence review, 18 articles were included (see Appendix A in the original guideline document). The GDG made the determination that none of these studies substantively changed the conclusions from the original AHRQ evidence report, but did provide further support for the conclusions of the AHRQ review.

Additional Key Question Literature Search

A healthcare librarian conducted a search for the additional key question including literature published from January 2005 to June 2012 and identified 613 citations. Eight articles pertinent to the key question included in the AHRQ review and two articles identified by the GDG were also reviewed.

Number of Source Documents

Update of Literature Search

For this updated evidence review, 18 articles were included (see Appendix A in the original guideline document).

Additional Key Question Literature Search

Two reviewers examined the titles and abstracts, resulting in 53 full-text articles being selected for review. After full-text review, a total of six articles were included for the additional key question (see Appendix B in the original guideline document).

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Constructing the Guideline

The guideline development group (GDG) used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system to rate the quality of the evidence for each outcome. The Agency for Healthcare Research and Quality (AHRQ) report did not provide strength of evidence ratings for prognostic factors so the GDG also rated the strength of evidence for those outcomes according to the methods suggested by the GRADE Working Group.

Methods Used to Analyze the Evidence

Meta-Analysis

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Update of Literature Search

Each relevant study was rated for quality of evidence using the approach used for the Agency for Healthcare Research and Quality (AHRQ) evidence report, detailed below (see also the "Availability of Companion Documents" field). In keeping with the AHRQ methods, studies that were rated as having good or fair quality were included for guideline development group (GDG) consideration. However, when only poor-quality studies were available for a topic, they were included.

Data Extraction and Synthesis

All eligible studies were reviewed and a "best evidence" approach was applied, in which studies with the highest quality and most rigorous design are emphasized. Data were extracted from each study, entered directly into evidence tables, and summarized descriptively. Benefits and adverse effects of mode of delivery were considered equally important and both types of outcomes were abstracted.

Studies were included in the synthesis of the evidence report if they achieved a good or fair quality rating as determined by study design, methods, and analysis. When possible, original data were used as presented in the article. When necessary, raw numbers were calculated from given percentages. Data were pooled from studies evaluating the same outcomes of interest. All results are reported as percentages to allow the reader to make direct comparisons of frequency. Because many of the adverse outcomes are rare, percentages were also translated into rates consistent with those reported in vital statistics, for example maternal death is reported per 100,000, while hysterectomy, infection, fever, transfusion, incidence of placenta previa by number of prior cesareans, neonatal mortality, and perinatal mortality are reported per 1,000. Several included studies came from the National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network (MFMU) cohort (see Appendix G in the evidence report). For synthesis, the most appropriate study is included for the outcome being discussed.

Studies that did not use an anatomic definition for uterine rupture were excluded from analysis of rates of uterine rupture. For other topic areas where studies that used an anatomic definition were not available (predictors, imaging to predict uterine rupture, and timing from symptom to

delivery as a predictor of infant outcome), information was provided from existing studies.

See the evidence report for more information on the quality rating of individual studies, development of evidence tables and data abstraction process, and the strength of available evidence.

Data Synthesis

In addition to discussion of the findings of the studies overall, meta-analyses were conducted to summarize data and obtain more precise estimates on main outcomes for which studies were homogeneous enough to provide a meaningful combined estimate. Otherwise, the data are summarized qualitatively.

For common events (e.g., trial of labor [TOL] and vaginal birth after cesarean [VBAC]) where normal approximation applies, estimates of rates and their standard errors were calculated from each study and directly combined. A random effects model was used to combine the studies while incorporating variations among studies. Statistical heterogeneity was assessed by using the standard Q-test and the I^2 statistic (the proportion of variation in study estimates due to heterogeneity rather than sampling error).

For rare or relatively rare events—e.g., the number of ruptures, maternal deaths and infant deaths, etc.—normal approximation does not apply well to estimates of rates directly, and the EPC staff used two slightly different methods to combine them. When studies did not report zero events in the group, they first logit-transformed the rates before combining the studies as the distribution for the logits of rates were usually approximately normal. The studies were then combined using a random effects model, and the combined rates were obtained by transforming the combined logit-rates to its original scale. Statistical heterogeneity (Q-test and I^2 statistic) was assessed based on the logits of rates for these outcomes. These analyses were performed by using STATA 10.1® (StataCorp, College Station, Texas, 2009). When there are studies that reported zero events, a logistic random effects model was used to include studies without events. This model also applies the logit-transformation of the rates to achieve better statistical property. In this case, statistical heterogeneity was assessed using Fisher's exact test, and analyses were performed using the NLMIXED procedure in SAS v9.2 (SAS Institute Inc., Cary, NC, USA).

Risk ratio and/or risk difference were used to compare various rates between TOL and ERCD groups. Again the studies were combined by using a random effects model and statistical heterogeneity was assessed using Q-test and I^2 statistic.

Forest plots were presented to graphically summarize the study results and the pooled results. To explore heterogeneity, EPC staff performed subgroup analyses and meta-regression to evaluate whether the summary estimates differ by study level characteristics.

For more information on the data synthesis, see the evidence report.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Guideline Panel

The American Academy of Family Physician's (AAFP's) Commission on Health of the Public and Science appointed a guideline development group (GDG) to update its 2005 Trial of Labor after Cesarean (TOLAC) guideline. The GDG was composed of family physician representatives from the AAFP, and representatives from American College of Obstetricians and Gynecologists (ACOG), the American College of Nurse-Midwives (ACNM), and Childbirth Connection, a national nonprofit organization that worked to improve the quality and value of maternity care. The GDG was charged with examining the evidence and developing a clinical practice guideline for pregnant women and their families, maternity care professionals, facilities, and policy-makers. The panel met by conference calls throughout the guideline development process.

Rating Scheme for the Strength of the Recommendations

Classification of Evidence-based Statements

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birth after cesarean [LAC/VBAC]), were designated as "Good Practice Points" (GPP) according to the recommendation of the GRADE Working Group. Recommendations were worded to indicate the underlying strength of recommendation. Strong GRADE recommendations were worded as "The American Academy of Family Physicians (AAFP) strongly recommends . . ." and weak GRADE recommendations were worded as "The AAFP recommends . . ." Good practice points carry the wording of "Clinicians should . . ." Recommendation ratings were decided by consensus among the guideline development group (GDG).

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Guideline recommendations were finalized based on consensus of the guideline development group (GDG). The guideline was peer-reviewed and all comments and any modifications based on those comments were documented. The American Academy of Family Practice (AAFP) Commission on Health of the Public and Science and Board of Directors reviewed and approved the final guideline.

The guideline was approved by the AAFP Board of Directors in May 2014.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate planning for labor after cesarean (LAC)/vaginal birth after cesarean (VBAC)

Potential Harms

- Uterine rupture is uncommon (3/1000 among women who have had a prior cesarean birth), but it can be catastrophic for both mother and infant. The assessment of short-term benefits and harms of labor after cesarean (LAC)/vaginal birth after cesarean (VBAC) should be individualized based on clinically identifiable risk factors for uterine rupture. The presence of a classical uterine scar increases the risk of uterine rupture compared with a prior low transverse incision; however, women with an unknown scar type do not appear to be at increased risk of uterine rupture.
- The rate of perinatal mortality for the fetus and infant (20 weeks of gestation to 28 days of life) are increased with LAC/VBAC compared to repeat cesarean delivery (RCD) (130 per 100,000 versus 50 per 100,000). The risk of perinatal death is highest if a uterine rupture occurs. The incidence of perinatal mortality was about 6% among six of the fair to good quality cohort studies of uterine rupture that used an anatomic definition.

Contraindications

Contraindications

Women with a history of a prior vertical uterine incision (but not a low vertical incision), a vertical upward extension of a transverse incision at the time of prior cesarean surgery or prior transmural uterine surgery (e.g., myomectomy) are at increased risk of uterine rupture. They should be informed that they are not appropriate candidates for labor after cesarean (LAC)/vaginal birth after cesarean (VBAC) and should be counseled to have a scheduled cesarean delivery.

Qualifying Statements

Qualifying Statements

- These recommendations are provided only as assistance for physicians making clinical decisions regarding the care of their patients. As such, they cannot substitute for the individual judgment brought to each clinical situation by the patient's family physician. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but they should be used with the clear understanding that continued research may result in new knowledge and recommendations.
- The recommendations are not intended to limit or restrict care provided by clinicians based on the assessment of individual patients.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Quick Reference Guides/Physician Guides

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Safety

Identifying Information and Availability

Bibliographic Source(s)

American Academy of Family Physicians. Clinical practice guideline: planning for labor and vaginal birth after cesarean. Leawood (KS): American Academy of Family Physicians; 2014 May. 20 p. [51 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1995 Apr (revised 2014 May)

Guideline Developer(s)

American Academy of Family Physicians - Medical Specialty Society

Source(s) of Funding

American Academy of Family Physicians

Guideline Committee

Guideline Development Group (GDG)

Composition of Group That Authored the Guideline

Guideline Development Group Members: Valerie J. King, MD, MPH, FAAFP, Professor, Department of Family Medicine, Director of Research, Center for Evidence-based Policy, Oregon Health & Science University, Portland, Oregon; Patricia L. Fontaine, MD, MS, FAAFP, Senior Clinical Investigator, HealthPartners Institute for Education and Research, Bloomington, MN; Lesley A. Atwood, MD, FAAFP, Clinical Associate Professor of Family Medicine, University of Minnesota, Allina Health, Hastings, MN; Elizabeth Powers, MD, Family Medicine Managing Partner, Rural Health Clinic Winding Waters Clinic, PC, Enterprise, OR; Lawrence Leeman, MD, MPH, Professor of Family and Community Medicine, Obstetrics and Gynecology, University of New Mexico School of Medicine; Jeffrey L. Ecker, MD, Professor of Obstetrics, Gynecology and Reproductive Biology, Massachusetts General Hospital, Harvard Medical School; Melissa D. Avery, PhD, CNM, FACNM, FAAN, Professor and Director of Midwifery, University of Minnesota, School of Nursing; Carol Sakala, PhD, MSPH, Director of Programs, Childbirth Connection, New York, NY; Doug Campos-Outcalt, MD, MPA, Chair, Department of Family, Community and Preventive Medicine, University of Arizona College of Medicine, Phoenix and Scientific Analyst for the American Academy of Family Physicians; Bellinda Schoof, MHA, CPHQ, Clinical Policies Manager, American Academy of Family Physicians; Michelle Jeffcott-Pera, MA, Clinical Policies Strategist, American Academy of Family Physicians

Financial Disclosures/Conflicts of Interest

Conflicts of interest (COI) were solicited in writing at the beginning of the guideline process and verbally at each subsequent conference call. No panel member disclosed any COI.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Wall E, Roberts R, Deutchman M, Hueston W, Atwood LA, Ireland B. Trial of labor after cesarean (TOLAC), formerly trial of labor versus elective repeat cesarean section for the woman with a previous cesarean section. Leawood (KS): American Academy of Family Physicians (AAFP); 2005 Mar. 18 p. [38 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available from the American Academy of Family Physicians (AAFP) Web site.

Print copies: Available from the American Academy of Family Physicians, 11400 Tomahawk Creek Parkway, Leawood, KS 66211.

Availability of Companion Documents

The following are available:

- Guise J-M, Eden K, Emeis C, Denman MA, Marshall N, Fu R, Janik R, Nygren P, Walker M, McDonagh M. Vaginal birth after cesarean: new insights. Evidence Report/Technology Assessment No. 191. (Prepared by the Oregon Health & Science University Evidence-based Practice Center under Contract No. 290-2007-10057-I). AHRQ Publication No. 10-E003. Rockville, MD: Agency for Healthcare Research and Quality. March 2010. Electronic copies: Available from the Agency for Healthcare Research and Quality (AHRQ) Web site.
- King VJ, Fontaine PL, Atwood LA, Powers E, Leeman L, Ecker JL, Avery MD, Sakala C, Campos-Outcalt D, Jeffcott-Pera M, Schoof B. Clinical practice guideline executive summary: labor after cesarean/planned vaginal birth after cesarean. Ann Fam Med. Jan/Feb 2015;13(1):80-1. Electronic copies: Available from the Annals of Family Medicine Web site.

In addition, a continuing medical education (CME) activity is available from the American Academy of Family Physicians (AAFP) Web site.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on June 30, 1998. The information was verified by the guideline developer on December 1, 1998. This summary was updated by ECRI on August 29, 2005. The updated information was verified by the guideline developer on September 20, 2005. This summary was updated by ECRI Institute on June 11, 2015. The updated information was verified by the guideline developer on July 13, 2015.

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